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ABSTRACT

This paper reports on a course format where a group of in-service teachers works together with a group of computer science and mathematics majors via a computer conferencing system. Most of the time, participants studied using the Internet, but at the end they produced and presented a seminar paper together in pairs. This type of course has now been given twice, and both times produced different outcomes. The teacher group did not turn out to be more discursive or more active in moderating than the student group. The teachers participated in a larger number of discussion topics while the students concentrated on those that were compulsory. However, an analysis of the discussion threads shows that both communities took equal part in most of the longer discussions, suggesting that the course goal of sharing multiple perspectives was fulfilled. Computer conferencing was shown to alleviate the problems of participating and running the courses. (Contains 11 references.) (Author)

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Enthusiasm Meets Experience: Collaboration of Two Communities through Computer Conferencing

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Abstract: In this paper we report on a course format where a group of in-service teachers works together with a group of computer science and mathematics majors via a computer conferencing system. Most of the time participants studied using the Internet but at the end produced and presented a seminar paper together in pairs. This type of a course has now been given twice which, interestingly, produced different outcomes. The teacher group did not turn out to be more discursive or more active in moderating. The teachers participated in a larger number of discussion topics while the students concentrated on those that were compulsory. However, an analysis of the discussion threads shows that both communities took equally part in most of the longer discussions which suggest that the course goal of sharing multiple perspectives was fulfilled. Computer conferencing was shown to alleviate the problems of participating and running the courses.

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Introduction

The Finnish national educational strategy emphasizes the importance of teacher training and suggests more extensive ICT (Information and Communication Technology) training for them (Ministry of Education, 1997). After the basic ICT courses such as text processing, multimedia production and information seeking on the Internet, there should be possibilities to go further (Sinko & Lehtinen 1998). Typically, the responsibility is left to the university continuing education centers which arrange courses for interested teachers to apply more advanced technologies, such as conferencing systems.

We are interested in bringing together not only in-service teachers, but also make this community to collaborate with pre-service teachers and other university students interested in educational technology. There are many similar efforts worldwide. Norton and Sprague (1997) studied on-line collaborative lesson-writing between pairs of in-service and pre-service teachers. Brehm (1999) has outlined factors for this kind of activity which is also called telementoring. Casey (1999) advocates virtual international seminars for pre-service and in-service teachers together with graduate students. He even states that virtual seminars and global interconnectivity as "...the most significant innovation that I have experienced to improve the quality and depth of student involvement in seminars" (Casey 1999). All above report on benefits for those taking part, especially for those younger participants, namely pre-service teachers and students.

In this paper, we report on a slightly different possibility of introducing new Internet technology to in-service teachers. In our approach, the teachers are brought together with a community of young university students majoring mainly in computer science (some of them, however, are pre-service teachers to major in mathematics). In this way we hope to produce synergetic effects by combining the experience of the in-service teachers with the technological knowledge and enthusiasm of the computer science students. The particular course where this co-operation takes place is a common effort of the Department of Computer and Information Sciences and the Department of Teacher Education at the University of Tampere. Although part of the same university these departments are situated in two different cities, 100 kilometers apart, which lead us to utilize Web-based computer conferencing as an essential element of our course.

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Background of the Study

The course under study ("Internet-based learning environments") is a voluntary second-year course for students majoring in computer science but is recommended to those interested in human-computer interaction and to those majoring to become mathematics teachers. This seminar type course has run every autumn since 1997. The course starts with lectures that take five weeks. During that time the selection of seminar topics is also carried out (week 3) and the pre-discussion on each topic on the Web commences (weeks 4-8). The final face-to-face seminar sessions take place during weeks 10-12.

We have reported elsewhere on our early experiences on this kind of "Web-extended" seminar course format (Hietala 1999). The benefits envisaged are as follows: more extensive and broader discussion of the topics, opportunities for the more shy students to participate, and time to get to know the other interested parties of the topic (community forming). The Web discussion has the same topics as the actual seminar presentations but the students are advised to carry out a free and more open-minded discussion than in the actual topic. Each discussion has two moderators (students giving the seminar paper) who are responsible for the starting, moderating and wrapping up the Web discussions (along the ways suggested by Bonk and Reynolds (1997)). In the seminar presentation the students are required to be a more focussed, maybe also illustrating their main ideas by demonstrating one or two Web-based learning environments. The moderating activity is taken into account in grading the students.

The Course with In-service Teachers

Here we report on two courses (autumns 1997 and 1999) where the course at our department was linked to the same course given concurrently (by the same lecturer) to a group of in-service teachers extending their information technology studies at the Department of Teacher Education. Now an idea arose to team up one in-service teacher with one student to prepare a seminar presentation together.

The benefits anticipated were the following. First, for the in-service teachers this new kind of a course might bring about a new "fresh" point of view to collaborate with a younger university student. Moreover, in the more technical topics and in the transfer of their presentation onto the Web (as an HTML document) the expertise of a more technically oriented student might be beneficial. On the other hand, the university students receive a discussion partner who is older and more mature and brings experience from the real school life. Furthermore, the opinions and work of the students might now lead to something more real than just another seminar paper for their university professor to read. On the whole, it was hypothesized that it would enrich the seminar discussions if we had voices in the participants from not only the community of Computer Sciences Department students but also from the Department of Teacher Education and especially those teachers who already had school work experience.

One problematic issue for all seminar students is typically how to select a seminar topic. On the latter course our participants were given the choice to suggest topics of their own, but this opportunity was not very much utilized. So the topics were mainly given by the lecturer. As a novelty of our geographically distributed seminar the selection of topics (one to moderate and present, two to be an opponent, or as we prefer to say, a designated commentator) took place within our conferencing system. We will come back to this in the next section. After obtaining a partner to their work they made contact, mostly by e-mail but sometimes also by telephone, and started the work. The first thing to do was to prepare and publish their initial thoughts on their subject - in other words, to start a discussion thread within the conferencing system.

The discussion period on the Web takes four weeks and after that the face-to-face seminar sessions commence. At the end of the course the in-service teachers are required to be present at the University to give their presentation together with their partner. Many participants reported this was the first time they actually saw their partner. As an experiment, one session in 1997, comprising two seminar presentations, was carried out using video-conferencing facilities, the pairs presenting being 100 kilometers away from each other.

The Conferencing System Used on the Course

Our conferencing software comes from the CoWoGLe (Conferencing on the Web for Group Learning) project that investigates the use of Web-based lightweight conferencing systems especially as part of university level course work (Hietala et al. 1997). The pedagogical goal of our use of the Web discussions on seminar

type courses is to guide the student discussion process into more argumentative and disciplined. One interesting feature that we hope to support this are the comment types in our conferencing system: our students were required to first decide the type of their comment and only after that write their comments. They are also requested to indicate the source of their comment. Comment types (also called as thinking types) encourage *reflection-in-action* (Duffy et al. 1998) because they make the student think about his/her contribution with relation to the other postings in the group (more on this kind of procedural facilitation see Hietala, 1998).

Another pedagogical strategy that our system supports is called *post-before-read* (Hiltz 1993): all students in a small group must state their own perspective to the initial start-up posting of the group moderator, and only after that they can see what others have written. This enhances the equal participation and maybe entices a broader set of issues to be covered in the subsequent discussions.

The Web technology could also help to manage a course in the problem of selecting a seminar topic mentioned earlier. Same number of students from these two groups was admitted to the course from the two locations. Remember they do not even meet each other at first. The conferencing system allowed them to select the topics they were interested at first-come-first-served basis starting the selection process exactly at the same time where ever they were located. We hoped that similar interests brought the pairs together. (Figure 1 shows the situation).

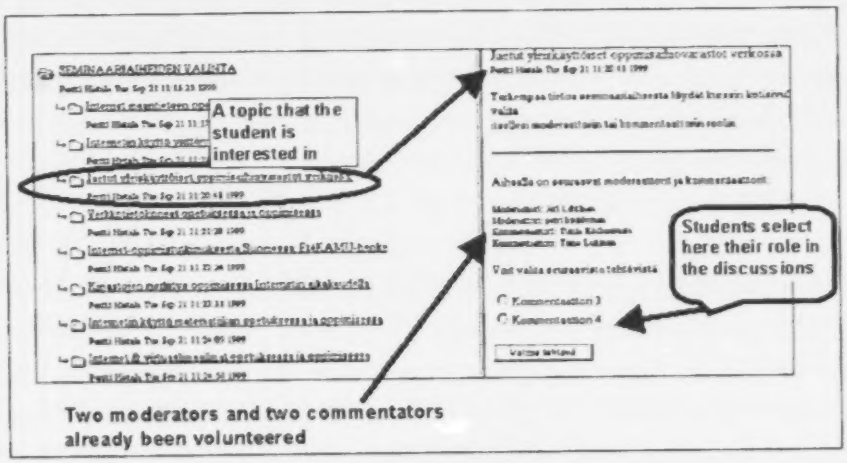
A topic that the student is interested in
Students select here their role in the discussions
Two moderators and two commentators already been volunteered

Figure 1. Student selecting his/her topic for the seminar.

Now, after having logged into the system, students would navigate to the list of seminar topics (on the left), they would click open the topic they were interested, and make a selection (on the right) of what roles were available there, that is, choose to be either a moderator, or a commentator. Within the conferencing system, we can also check that the two moderators come from these two different groups.

The Study

On these two courses under study there were 36 (1997) and 28 (1999) participants. The in-service teachers mainly taught at elementary level, although there were a few mathematics teachers at secondary level. Most of them were active in their schools in ICT and their major incentive for participating the schooling was to better utilize ICT in their daily work, not to earn grades as a graduate student. They had already 15-credit week training in ICT (especially geared for teachers) but these studies came from different universities so they background knowledge was not very homogeneous. Also the cities where they taught varied. Although most of their training for this 35 credit week ICT studies (of which our course was also part) took place in the city of Hämeenlinna (almost 100 kilometers from Tampere) some of them came from rather far (from Helsinki or even from Joensuu, 400 kilometers away!) This shows their dedication to this new type of training; however, it of course brought along problems in scheduling the seminar sessions.

The university undergraduates were mostly computer science majors, with 20 % of them majoring to become mathematics teachers (i.e. were pre-service teachers). They had already one course on educational technology.

Discussion Topics

We can see in Table 1 that popular topics in the Web discussions were both broad and "up-to-date" ones while those technical or detailed did not receive so many postings. Issues that can be seen to interest either in-service teachers or computer science majors came to the top. The most popular threads contain already in their title words that already arouse interest, namely the words "critical" and "possible".

The "deep" discussion chains (up to level 12 and 8, respectively) suggest that our goal of aiming at sustained progressive discussions was met. Content analysis of these chains supports this observation.

Year 1997 (total 919 comments in 18 topics)	**Year 1999 (total 581 comments in 15 topics)**
The most popular discussions on topics: Internet on the elementary level (86), WWW and virtual reality (68), WWW and learning games (63) **The smallest discussions on topics:** MUD/MOO and teaching (26), guided paths on the WWW (29), Web books and teaching (31)	**The most popular discussions on topics:** Internet and the Instruction of Finnish (81), Internet and the basic computer skills (46), School strategy, curriculum and Internet (45) **The smallest discussions on topics:** Internet and teaching history (23), Internet and physics teaching (25), International class projects and the Internet (26)
"Deepest" discussions on topics: - up to level 12: Critically selected information from the Internet (Internet at elementary level) - up to level 11: Visualization is possible (Science learning and WWW)	**"Deepest" discussions on topics:** - up to level 8: The Internet itself is a solution (Internet in language teaching and learning) - up to level 7: The level of writing... (Internet and the Instruction of Finnish)

Table 1. The discussion topics

Discussion Activity in the Two Groups

Let us next see how the discussion contributions of the two communities were distributed. As we can see in Figure 2 the discussion and moderating activity on both courses exceeded the compulsory (one comment per week in each of the three designated discussion groups) for all groups, but there were differences. Teachers were more active in the 1997 course while the student group produced clearly more contributions during the 1999 course. The student group turned out to take more actively care of their moderator roles.

The teacher group, however, was more active in the "Free commenting" i.e. in other topics than their compulsory moderator and discussant topics. This was true both years. For example, in 1997, teachers made on the average 6.61 contributions as free commentators while the students made 4.39 comments. This shows clearly that the teacher group wanted to obtain a wider view of the genre "Internet-based learning environments" and had contributions to offer in most of the topics. Students, on the other hand, concentrated on fewer topics (mostly those compulsory).

Let us analyze a little closer the longer discussions, i.e. those sub-discussions which contain five or more contributions. It turns out that 66 % (1997) and 55 % (1999) of them are balanced in that way that neither of the two communities dominates the discussion by having more than 70 % of the discussion entries. In our opinion this suggests that one of our course goals - sharing multiple perspectives - actually did occur. Moreover, in these longer sub-discussions there were an equal number (29) that was started by a teacher or a student participant in 1997. In the year 1999 students started 23 (teachers 15) of these longer discussion chains. Although thus the year 1999 shows student dominance (see also Figure 2) we think that this gives evidence that both parties were rather equal in producing interesting contributions to the overall discussions.

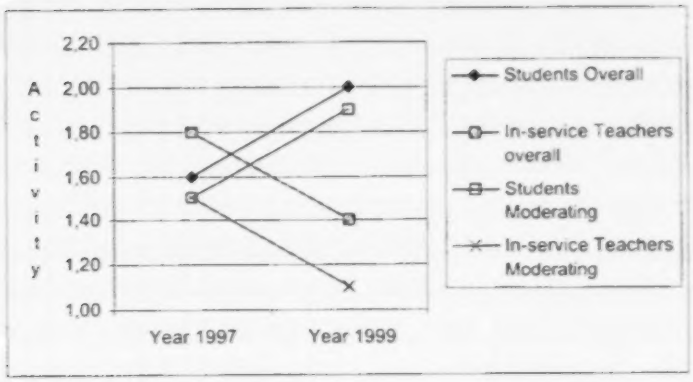

Figure 2. The discussion activity (all discussion postings / compulsory postings)

Finally, both groups seemed to base their postings to personal experience: over 60 % of the comments in either group were given the source type "My own opinion". The next popular source types "My own idea" and "Discussion with others" were used far more seldom. The source labels "From lecture", "From literature" or "From Mass Media" obtained the lowest usage. This shows that the content of the discussion was more of an exchange of experiences than elaboration of issues raised during lectures. Also, our Web discussion guidelines encouraged carrying out a free-form exchange of opinions related to the seminar topics.

Feedback from the Participants

Feedback was collected at the end of the two courses. It was mainly favorable, e.g.

"The course was interesting because it was the first experience of studying using the Web ... In my opinion the separation between these two cities brought extra colour and feeling of reality." (student/1997)

Most of the critical comments focussed on the seminar organization. Of course, teachers who came from far had more problems than the students did. After Web discussions the participants had also developed a better understanding of the topics and were "looking for more" in the face-to-face sessions.

"It was an OK course but I did not feel that the mixing up pairs with teachers and student was meaningful. Sure it worked relatively well but the teachers are working people and the arrangements would have been easier with a local pair. However it was interesting to get to know the conferencing system!" (teacher/1999)

All in all, the latter course seemed to arouse more critical comments on the collaboration, from both the students and the teachers. It is quite evident that there can be problems in communication with a person who is of different age, of different working background and from a different location.

Concluding Remarks

In our opinion, the approach described above turned out to be rather successful. According to our analyses, the quantity and quality of the seminar discussions benefited from having two communities being brought together. Especially the teachers' participation into a wider set of discussion topics and the fact that majority of the longer discussion threads were equally populated with both teacher and student participants suggests that our goal of both communities having the chance to learn from each other seems to have succeeded. Our analysis did not show dominance of one group in the discussions although more detailed content analysis is needed for definite results. In the feedback, however, we have at least one student who claims that his teacher pair was too authoritative and did not give him equal say in the seminar preparation.

Although the teachers reported problems not having enough time to participate especially in the seminar sessions the overall grades of both students and teachers were rather good. The Web pre-discussion

supported the actual seminar presentations, which turned out to be of good quality. Some of the participants even wanted the discussions to be alive for a longer period:

> *"Meeting an in-service teacher on the Web and elsewhere was something very useful for a computer science major and working with professionals gave us new ideas. The Web discussion period could have continued after the actual seminar presentations." (student/1997)*

We recommend bringing in-service and pre-service teachers together with ICT oriented students in a manner described above. At our department, this collaboration between our students and in-service teachers has lead to another course of similar flavour. Namely, on a follow-up course where our students build an interactive Web learning environment we have a group of local in-service teachers as domain experts. They provide interesting topics for our students and act as advisors during the learning environment design and implementation process. The pupils in their classes can also serve as usability test subjects for these learning environments. In return, the final Web environments are installed permanently on our departmental Web site for their classes to use. Thus, the experiences of the two courses reported above did not diminish our enthusiasm for university and school synergy!

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References

Bonk, C.J., & Reynolds, T.H. (1997). Learner-centered web instruction for higher-order thinking, teamwork, and apprenticeship. In Khan, B.H. (Ed.), *Web-based instruction*. Educational Technology Publications, 167-178.

Brehm, B. (1999). Factors for successful telementoring of pre-service teachers. In Collis, B., & Oliver, R. (Eds.), *Proc. of ED-MEDIA 99: World Conference on Educational Multimedia, Hypermedia & Telecommunications*. AACE, 1300-1301.

Carey, S. (1999). Pre-service, in-service and graduate on-line language education. In Price, J.D., Willis, J., & Willis, D.A., Jost, M., Boger-Mehall, S., (Eds.), *Proceedings of SITE 99: Tenth International Conference of The Society for Information Technology and Teacher Education*. AACE, 1254-1259.

Duffy, T.M., Dueber, B., & Hawley, C.L. (1998). Critical thinking in a distributed environment: a pedagogical base for the design of conferencing systems. In Bonk, C.J., & King, K.S. (Eds.), *Electronic collaborators: learner-centered technologies for literacy, apprenticeship, and discourse*. Erlbaum, 51-78.

Hietala, P. (1999). Web Pedagogy: Extended Seminars on the World Wide Web. In deBra, P., & Leggett, J. (Eds.), *Proc. of WebNet 99: World Conference on the World Wide Web and Internet*. Short paper. AACE, 1292-1293.

Hietala, P. (1998). Procedural facilitation in Web discussions. *Proc. IFIP Teleteaching'98: Distance learning, training and education*, Vienna-Budapest. IFIP/Austrian Computer Society, 445-454.

Hietala, P., Niemirepo, T., & Ovaska, S. (1997). Using the World Wide Web to promote educational discussion on university level courses. In Verdejo, F., & Davies, G. (Eds.). *Proc. of IFIP 3.3 and 3.6 Joint Working Conference "The Virtual Campus: Trends for Higher Education and Training"*. Chapman & Hall, 169-183.

Hiltz, S.R. (1993). Correlates of learning in a virtual classroom. *Int. J. Man-Machine Studies* (1993) 39, 71-98.

Ministry of Education (1997). Memo 26, Helsinki.

Norton, P., & Sprague, D. (1997). On-line collaborative lesson planning: an experiment in teacher education. *Journal of Technology and Teacher Education*, 5 (2/3), 149-162.

Sinko, M., & Lehtinen, E. (1998). *The Challenges of ICT in Finnish education*. The final report of the Finnish national evaluation of ICT in learning and teaching. Jyväskylä: ATENA.

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